- 63 -

## ABSTRACT OF THE DISCLOSURE

A multi-point communications system is set forth herein. The communications system comprises a head end unit disposed at a primary site and a plurality of receivers disposed at remote sites. The head end unit includes a transmitter for transmitting OFDM/DMT symbols over a predetermined number of bins across a transmission medium. The OFDM/DMT symbols are transmitted in periodically occurring formatted symbol frames. The cyclic prefix includes a predetermined periodic signal superimposed thereon. The receivers receive the OFDM/DMT symbols over a subset of the predetermined number of bins from the transmission medium and use the superimposed signals to attain symbol alignment. Preferably, the superimposed signal is an impulse signal that varies in polarity throughout the transmission cycle and which is superimposed on one or more symbols occurring during a cyclic prefix of the formatted symbol frames. In accordance with a further aspect of the present invention, the receivers apply a predetermined incremental phase shift to received samples corresponding to the received OFDM/DMT symbols to thereby compensate for phase shifts resulting from the cyclic prefix. The multi-point communications system may include a similar system for aligning symbols transmissions from a remote service unit having a transmitter. Such a system includes a plurality of remote service units each including a transmitter for transmitting OFDM/DMT symbols over a predetermined number of bins across a transmission medium. Each of the plurality of remote service units is operable in a symbol alignment mode in which the transmitter transmits a broad band

periodic signal. The head end unit includes a receiver for receiving the OFDM/DMT symbols, including the broad band periodic signal, from the transmission medium. The head end unit uses the time position of the broad band periodic signal to align the symbol transmissions of the remote service unit with other ones of the remote service units.